



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Telecommunications and**  
**Information Administration**  
Washington, D.C. 20230

December 19, 1996

Mr. William Caton  
Secretary  
Federal Communications Commission  
Rm. 222  
1919 M Street, NW  
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

RE: Comments to the Public Notice issued by the FCC on November 18, 1996

Mr. Caton:

The National Telecommunications and Information Administration (NTIA), an agency within the Department of Commerce, submits the following aggregate responses from some of the grant recipients of its Telecommunications Information Infrastructure Assistance Program (TIIAP) in response to the Public Notice in CC Docket 96-45 issued by the Federal Communications Commission on November 18, 1996. The Public Notice requests comments regarding additional information on the relative costs and benefits of differing levels of universal service support for rural health care providers. Enclosed are the compiled responses to the questionnaire in these proceedings to be included as comments to the November 18th Public Notice. Please note that this is informal data which has not yet been analyzed by us. NTIA plans to conduct and submit an analysis of the questionnaires to the FCC by the January 10, 1997 reply comment deadline.

While the FCC is in the midst of implementing the Telecommunications Act of 1996, the Department of Commerce realizes the need for interagency participation and cooperation in this process. We hope this information will assist representatives from the Commission in the implementation of the Act, to improve access to health care for Americans in rural areas and to increase the development of telehealth services. If you should have any questions regarding the submitted information, please contact Norma Fleischman (202) 482-0775 at your convenience.

Sincerely,

Kathryn C. Brown  
Director, Office of Policy Analysis and Development

Stephen J. Downs  
Acting Director, Telecommunications Information Infrastructure Assistance Program

Enclosures

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COMPILED RESPONSES TO THE QUESTIONS SET FORTH  
IN THE  
FCC PUBLIC NOTICE ISSUED  
ON  
NOVEMBER 18, 1996

CC Docket No. 96-45

The following compilation of responses corresponds to a survey questionnaire sent to several NTIA Telecommunications Information Infrastructure Assistance Program grant recipients, during December 9-17, 1996. Responses to Questions 1 and 2 which disclose grantee identity have been excluded. The respondents have been assigned number 1-10 as identifiers.

NTIA SURVEY RESPONSES

Question 3. What is the distance from your site(s) to the nearest city of population equal to or greater than 5000 in your state?

Responses

1. 60-80 miles
2. 15-150 miles
3. 70 miles
4. 60-180 miles
5. 164 miles
6. 33-86 miles
7. 0 miles
8. 100-140 miles
9. 100 miles
10. 82-160 miles

Question 4. Name of the project's telecommunications service provider:

1. U.S. West and Pacific Telephone Incorporation (PTI)
2. GTE, Bell Atlantic, General Telephone, AllTel
3. AT&T
4. US West, AT&T, BEK Consolidated
5. University of Nevada School of Medicine and Washoe Medical Center
6. Oklahoma Telemedicine Network(OTN) provides services for the project; the carriers

subcontracted by OTN include Southwestern Bell Telephone, GTE/Pioneer Telephone, Indian Nations Fiber Optic, Dobson Fiber Optic and others. The network is managed by Intellimed

7. BellSouth
8. University of New Mexico
9. Southwestern Bell, Golden Belt
10. AT&T, NYNEX, Champlain Telephone Co.

Question 5. Level of telecommunications service the project is currently using: (For example, voice grade, 144 Kbps (ISDN), 384 Kbps, T-1 or equivalent)

1. T1 line
2. ISDN-BRI circuits installed and are running at 128 Kbps to the desktop
3. T 1 1.54Kbps
4. T 1
5. T 1 or equivalent
6. Multiplexed T 1 service
7. T 1, Frame Relay 64KB, 28.8Kbps
8. 28.8
9. ISDN 384 Kbps and factional T 1
10. 2 Virtual ISDN circuits at each remote location with ISDN T 1 at main location

Question 6. Charges for telecommunications service:

- a. Is there a monthly charge? No Yes  
If yes, how much is the charge?

1. \$229-\$1,625
2. ISDN circuits to all sites have a monthly charge of \$38.83, with the following exceptions: \$466.74 per month in addition to the \$38.83 monthly charge; \$466.74 per month in addition to the \$38.83 monthly charge; \$286 per moth for ISDN lines into server. All sites also incur a \$30 monthly charge for modem lines
3. \$2793.97
4. \$988-3069
5. \$375-700
6. \$2,000-\$4000 per T 1
7. T 1 \$616; Frame Relay \$145; Dialup \$67 and \$53
8. No
9. ISDN \$510/mo/PRI; T 1 \$240
10. \$82

- b. Is there a usage-based charge? No Yes  
If yes, how much is the charge?

1. No
2. No

3. No
4. No
5. No
6. No
7. No
8. No
9. No (ISDN BRI), (Yes) ISDN PRI ,(Yes) T-1, ISDN PRI .04/min/chnl, T-1: \$36.50 per hour
10. Yes \$28 per hour, per site

c. Is there a distance component (such as a per-mile fee) of the charge? No Yes

1. T 1 lines are by their nature distance sensitive
2. No
3. \$967.47
4. No.
5. \$6.77 per mile
6. No
7. T1=\$1,240; Frame Relay=\$890;Dialup=\$153 and \$69
8. No
9. \$180/mo/3BRI
10. Part of usage charge - mileage

d. Was there an installation fee? No Yes  
If yes, how much was the charge?

1. \$188-\$606
2. ISDN circuits, \$169.75; modem lines, \$75-\$161
3. No
4. \$676
5. \$3,100
6. Fees charged, amounts not available
7. T 1=\$1,240; Frame Relay=\$890; Dialup=\$153 and \$69
8. No
9. \$700
10. \$500

e. Is the charge the regular tariffed rate, or is there a discount from the telecommunications provider? Tariffed Discount  
If there is a discount, how much is it?

1. Tariffed
2. Tariffed
3. Tariffed
4. Tariffed
5. Discount, unknown

6. Discount, unknown
7. Tariffed
8. No tariff/discount
9. Tariffed
10. Discount, 25%

Question 7. How does the project use telecommunications in the delivery of health care: (For example -- to send x-rays, distribute public health information, or perform video consultations. Please identify any occasional or episodic uses, such as might result from an outbreak of disease.)

1. To perform real-time interactive video consultation (Cardiology, Dermatology, Speech Pathology, Counseling, etc; to transmit x-ray images;
2. Video consultations, exchange patient information, support physician communications, access to medical information via the Internet, monitoring remote internships, continuing medical education courses;
3. Video consultations for cardiology, oncology, psychiatry, continuing medical education;
4. Speciality consultation, x-ray, education, administrative, emergency and trauma;
5. Video consultations including: mental health, assessment of handicapped children cardiology, substance abuse, orthopedics, internal medicine, obstetrics, dermatology, trauma, geriatrics, and pediatrics;
6. Carry radiographic images, distribute, health care provider staff within service education, provide patient education and therapy, provide physicians with continuing medical education programming and provide access to video based consultation. For three of the sites, the system also carries cardiac telemetry allowing patients in monitored beds at these sites to be monitored by a technician located at a distant location. The primary benefit has been the reduction of time to read a radiographic image from several days to less than an hour. Episodic use has centered on trauma related radiographic consultation; no use for wide scale disease outbreak has occurred. The system capacity would, however allow the rapid comparison of radiographs from 13 countries in one facility(literally within minutes) and the consultation of staff from the same region at the same time;
7. E-mail between health care providers within the network, both intra-organization and inter-organization. Internet access for medical information databases, nationally and internationally. Access to university medical information database (micromedia) and patient demographic data;
8. Distribute public health and educational materials and answer health related questions;
9. X-ray, CME,CNE,CE, interactive video consultation, primary emergency care coverage, telepsychiatry provider-patient;
10. Dial-up visual telecommunications system for the outreach baccalaureate nursing program. The base sit equipment consists of a Picture TeLEARNING package which bundles all required peripherals in one package. Peripheral equipment allows viewing documents, VCR shows, slides, white boards ro computer graphics. Distance sites are equipped with PictureTel 200 packages and will be located in public schools in rural areas to be used for health education programs. The information sessions will be one hour in length twice a week and will begin in the seventh month by addressing the needs of the pregnant family. Additional health education topics such as nutrition, exercise, hearing and speech assessments, and living with chronic and/or

progressive diseases, i.e. diabetes, stroke, and Alzheimer's disease and other forms of dementia will be developed and offered by faculty and community health practitioners based on the needs and interest of the participants.

Question 8. Could the project provide the services it is currently providing with less bandwidth? What effect would a lesser level of bandwidth have? (The implications of using greater or lesser levels of telecommunications services are related to image transmission time. What would be the impact if the health care activities for which you now use telecommunications took twice as long, or if they could be completed in half the time?)

1. Telecoms are only providing full T 1. They will not provide fractional. Our project would function will at  $\frac{1}{2}$  T 1 and could be reduced to a minimum of  $\frac{1}{4}$ ;
2. The most important services delivered via the CANAD.. system (video consultations and continuing medical education courses) could not be effectively provided at speeds lower than the current Kbps;
3. Need T 1 bandwidth for clinically adequate video;
4. Medical consultations, no less than  $\frac{3}{4}$  T1 should be used, Administrative and continuing education could drop to  $\frac{1}{4}$  to  $\frac{1}{2}$  T1 if we had communications capabilities with the carriers;
5. No. Lesser bandwidth would cause a decrease in the quality of the image being sent which would decrease the consulting physician's ability to make the most informed diagnosis;
6. Each of the individual services could operate on a lower bandwidth circuit; however delivery of the entire suite of services cannot be achieved on less than a T1. Reduction of bandwidth, due to the complex multiple application use of the network would disable applications. We would have to choose between operation of teleradiology and the availability of the video circuit for other services;
7. We currently provide service at various speeds from 10 Mbps to 28.8 Kbps. We have found that 64KB is the minimum for satisfactory internet access. We transmit medical x-rays at T 1 speed. Faster speed would be a great improvement in response time for Internet WWW access and would lead to more utilization of the system;
8. No. Needs more;
9. X-ray, yes. Teleconsult, no;
10. The effects of a lesser bandwidth is a delay in the restitution of the picture, the lag time between transmission and reception is increased. We could conduct the health information sessions, but the participants would find the lag time disturbing. They will unconsciously make a comparison with commercial television.

Question 9. What would the implications of having a greater level of bandwidth be?

1. In some rural communities maximum band width has been only 128 Kbps. This is unsatisfactory for achieving levels of clinical confidence and improving access. Improved band width equates to improved quality of image;
2. As stated above, more demanding video consultations could be performed and more advanced training courses provided. Additionally, if better equipment was made available at each participating site, teleradiology and telepathology applications become much more feasible.
3. Do not need more than T1;

4. None. Better the resolution, the better the utilization of telemedicine;
5. Higher speed equals higher quality;
6. At higher than T 1 bandwidths we would operate the video based services at greater resolution with less service disruption (lower tiling, fewer frozen frames, less audio disruption). The teleradiography service would transmit at faster rates, but current transmission times of 2-10 minutes are sufficient and the probable improvement (to times of 1-5 minutes) would not create a significant improvement;
7. See 8 above;
- 8 Better connectivity, possibility of video;
9. Better image quality;
10. As the bandwidth increased, restitution of the visual is speeded up and the comparison with commercial television is more favorable.

Question 10. Do you have e-mail? No Yes

1. Yes
2. Yes
3. No
4. Yes
5. Yes
6. No response
7. Yes
8. Yes
9. Yes
10. Yes

Question 11. Do you have Internet access? No Yes

If yes, do you incur long-distance charges by using it? No Yes

Please estimate your number of hours of Internet use per month.

1. Access to Internet service using local telephone number has just become available. There is no way to estimate the number of Internet hours used at this time;
2. Yes to Internet access. No to charges. Access occurs through the Commonwealth of Pennsylvania's Metropolitan Area Network (MAN). The MAN is linked to the Commonwealth's own domain name server which in turn provides access to PrepNet, a mid-level network in Pennsylvania that provides connectivity to the Internet;
3. No;
4. Yes to access; Yes to charges @\$25 per month;
5. Yes; and Yes to charges, however, there is no cost if done over the T1 line. Number of hours is unknown;
6. No response;
7. Yes. No charges. 1,000 hours for network users per month;
8. No;
9. Yes. No charges. 16 hours per month;
10. Yes. No charges.

Question 12. If you have access to the Internet, please list any purposes other than e-mail (such as accessing databases such as Lexis/Nexis) for which you use it.

1. The Medical Center has experimented with attaching x-ray files and images to e-mail messages. Searching the Internet for medical advice is unlimited and is used in every day for that purpose;
2. Primarily researching federal grant opportunities and developments in technology as it relates to state government applications;
3. No response;
4. Access to grant programs, medical information;
5. Accessing databases such as Grateful Med; recruitment/retention home pages;
6. No response;
7. Accessing National Library of Medicine data bases such as MEDLINE, CNN new network, university data bases;
8. No response;
9. Research, information sharing, sharing of medical images;
10. At this time we only use the Internet for e-mail.